



2009 Corrective Measures Implementation Plan

*July 2009
(Rev September 2009)*

Prepared for:

***Central Wire – Union Plant
6509 Olson Rd.
Union, IL 60180-0423***

Prepared by:



Matrix Environmental, Inc.
1880 W. Winchester Rd., Suite 111
Libertyville, Illinois 60048

1.0 INTRODUCTION

The Central Wire Union Plant is located in Union, Illinois. It is operating under an Order on Consent with the U.S. Environmental Protection Agency to operate a groundwater extraction and treatment facility to remove a chlorinated solvent plume from the groundwater downgradient from the Central Wire facility.

In analyzing the groundwater from the downgradient well nest over the years it has become apparent that some of the plume had migrated beyond the capture zone before the treatment facility was put into operation in the early 1990s.

As a result, since 2007 Matrix has been sampling residential wells and the most upgradient well, an irrigation well, at the South Branch Nursery to make sure that these drinking water wells and one irrigation well have not been impacted. To date there have been no detections of chlorinated solvent in any of the residential wells or in the South Branch Nursery irrigation well.

Central Wire has also been attempting to identify the leading edge of the plume on an annual basis in order to insure that the residential wells downgradient of the plume are protected. The leading edge is on the South Branch Nursery property about 500 - 700 feet from the South Branch Nursery well and about 900 - 1000 feet from the nearest residential well.

While groundwater transport modeling conducted in 2007 and 2008 predicted that the chlorinated solvents in the plume would degrade before reaching residential wells and while we generally found only degradation products at the leading edge of the plume in 2008 at GP-8 (see Figure 1 and Table 2), Central Wire wants to make sure it takes actions to insure the protection of the drinking water for the residences along Illinois Route 176.

See Tables 1 and 2 for the most recent off site data collected in the 2007 and the 2008 RCRA CMI field investigations.

At previously calculated rates of plume movement of about 125 to 130 feet per year, it would take approximately four years until reaching the South Branch Nursery irrigation well, up to 7 years before reaching the well at the home on the Non-responsive in front of the Non-responsive and up to 9 – 10 years before it reached the closest residential well on the Non-responsive.

2.0 2009 CORRECTIVE MEASURES IMPLEMENTATION PLAN

The 2009 Corrective Measures Implementation Plan covers two primary activities:

- The 2009 field investigation that is described below.
- Update the RCRA Financial Assurance cost estimate to include the current Central Wire CMI “exit strategy”, also described below.

U.S.EPA also requested that Central Wire identify other potential sources of contamination of the groundwater with chlorinated solvents. Information over the past twenty years has indicated that a company named Southern California Chemical (currently out of business), located on the south side of Jefferson Street and just west of Central Wire, had a groundwater contamination problem with solvents. In addition Aubrey Manufacturing Co. (no longer operating in Union) located at 6709 Main Street, two blocks south of Jefferson Street had problems with groundwater contaminated with chlorinated solvents.

U.S.EPA also requested that Central Wire identify the public drinking water wells. Union’s municipal well No. 1, located just west of Main Street north of downtown, and well No. 4, located just south of Jefferson Street and east of Main Street, are identified on Figure 1.

2.1 2009 CMI Field Investigation

The objectives of the 2009 field investigation are to:

- Assure Central Wire, U.S.EPA, local residents and any additional stakeholders that the public is being protected, i.e., chlorinated compounds are not reaching the shallow groundwater drinking water wells downgradient of the contaminated solvent plume.
- Learn more about the characteristics of the aquifer and the interaction of the plume with the environment by collecting additional data that is outlined below.

The 2009 CMI Field Investigation will include the following tasks:

- Locate and place on map/drawing(s) all groundwater monitoring wells, geoprobe points, municipal wells, extraction wells and irrigation wells, as well as potential sources of contamination.
- Collect a groundwater sample north of the South Branch of the Kishwaukee River where North Union Road crosses the river to determine if the chlorinated solvent plume has migrated under the river. See GP-21 on Figure 2, 2009 Proposed CMI Investigation Plan.
- Collect a surface water sample in the South Branch of the Kishwaukee River adjacent to GP-9 to determine if any measurable chlorinated solvents are entering the river adjacent to GP-9 where the chlorinated solvent plume was determined to be present in the 2008 investigation. See SW-1 on Figure 2.
- Perform groundwater sampling to locate the leading edge of the chlorinated solvent plume. This will be done using a Geoprobe direct push machine to collect samples on the South Branch Nursery property as was done in 2007 and 2008. Samples will be collected at three depths at each of five Geoprobe locations – at 27 feet, 57 feet and 85 feet deep. In addition, GP-3 and GP-8 will be resampled at all three depths as were done last year.
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- It was originally planned to place a three well cluster (27 ft, 57 ft and 84 ft below ground surface (bgs)) approximately halfway between GP-8 and the northwest corner of the Bolanos property and place transducers in these three wells to record water levels every 15 minutes to determine if off site irrigation influences the rate of expansion of the chlorinated plume. Matrix Environmental personnel contacted the manager of the South Branch Nursery before the June 16, 2009 conference call and explained the planned sampling program including the placement of this well nest on the South Branch Nursery property. The manager indicated that he would have to discuss this placement of "permanent wells" on their property. He got back to Matrix about one week later indicating that the owner would allow access and allow geoprobe sampling but would not allow the placement of permanent wells on his property. This was discussed with U.S.EPA in a conference call on June 16, 2009 which was convened to discuss the scope of this investigation.
- Place a three well cluster (27 ft, 57 ft and 84 ft bgs) in the south Right of Way of Illinois Highway Route 176 and place a transducer in one of these three wells (same screened interval as irrigation well) to record water levels every 15 minutes to determine if off site irrigation influences the rate of expansion of the chlorinated plume. Water levels will be logged with HOBOT model U20 Water Level Logger. According to the manufacturer, the logger has a resolution of 0.007 foot, an operating range of 30 feet of water, and a burst pressure of 60 feet of water. Based on the burst pressure and a static water depth of approximately 10 feet, transducers will be installed at a depth of 40 feet in the intermediate depth well. If water levels ever draw down below the transducers, the transducers will either be lowered or, if necessary, replaced with transducers that have a deeper burst pressure. Water-level data will be uploaded monthly in the field, and water levels will be measured manually to within 0.01 foot whenever the data are uploaded. If there is a discrepancy of 0.05 foot or more, the transducer will be recalibrated. Water levels will be adjusted for barometric pressure and converted to elevation above sea level. Electronic data files will be provided to U.S. EPA.
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Central Wire will receive sample results approximately two weeks after samples arrive at the laboratory and sampling results will be reported to U.S. EPA in the following monthly Progress Report.

3.0 UPDATE OF RCRA FINANCIAL ASSURANCE COST ESTIMATE

The Central Wire Union Plant last updated the RCRA Financial Assurance Cost Estimate in 2007, but updated it at that time to include the 2008 estimated costs. As part of this project Central Wire will update the RCRA Financial Insurance Cost Estimate to include estimated 2010 costs of closure and post closure care.

While we have stated above that Central Wire does not expect to see any chemicals or degradation products in the closest well, the South Branch Nursery irrigation well, for about four years, Central Wire will include the replacement of one well drilled and cased to the St. Peters Sandstone in the revised estimate.

SUPPLEMENTAL RESPONSES TO U.S. EPA COMMENTS

Central Wire recognizes that groundwater in the St. Peter Sandstone may exceed MCLs for radium. Central Wire will take appropriate scientific and engineering actions including radium analysis at the planned depth of the well screen for radium and perform a risk assessment if the analytical results exceed the MCL.

U.S. EPA made a request that the well that the transducer is in not be flush mounted. This well would then require bollards to protect the well casing and protector pipe. Illinois DOT may not allow Central Wire to do this because it would impair their ability to mow the Right of Way.

Central Wire understands that U.S. EPA approves the proposed sampling locations as modified by your comments on the original Work Plan. If there is an MCL exceedence on samples presumed to be at the leading edge of the plume, Central Wire will resample farther downgradient as a part of this sampling event. In last year's sampling event, GP-8 was the well presumed to be at or beyond the leading edge of the plume. There were detections for 1,1,1-TCA and 1,1-DCE, but they were below the MCLs.

Table 1
Central Wire Company Union, Illinois
March 2007 Geoprobe Sampling
Results

		Monitoring Location		GP-2S	GP-2D	GP-3S	GP-3I	GP-3D	GP-4S	GP-4I	GP-4D	GP-5S	GP-5I	GP-5D	GP-6S	GP-6I	GP-6D	GP-7S	GP-7I	GP-7D
		Sampling Date:		Mar-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Mar-07	Mar-07	Mar-07
Parameter	Method	Units	MCL																	
Vinyl Chloride	8260B	µg/L	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	8260B	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	8260B	µg/L	7	-	-	12	17	8.9	-	-	-	-	-	-	-	-	-	-	-	-
Methylene chloride	8260B	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total 1,2-Dichloroethene	8260B	µg/L	170	-	-	-	5.7	3.4	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	8260B	µg/L	800**	-	-	1.0	19	13	-	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	8260B	µg/L	200	6.2	-	100	73	10	-	-	-	16	-	-	-	-	-	-	-	-
1,2-Dichloroethane	8260B	µg/L	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	8260B	µg/L	5	3.1	-	59	42	11	-	-	-	4.7	-	-	-	-	-	-	-	-
Toluene	8260B	µg/L	1000	-	-	-	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-
1,1,2-Trichloroethane	8260B	µg/L	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	8260B	µg/L	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total Xylenes (m,o, & p)	8260B	µg/L	10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Key: J = Parameter detected below quantitation detection limit
 = Not Detected
 * = Not Analyzed
 ** = Region 9 Preliminary Remediation Goal
 S = Shallow = 27'
 I = Intermediate = 57'
 D = Deep = 85'

Table 2
Central Wire Company Union, Illinois
October 2008 Geoprobe Sampling Results
for Volatile Organic Compounds

		Monitoring Location	GP-3S	GP-3L	GP-3D	GP-3S	GP-3L	GP-3D	GP-8S	GP-8L	GP-8D	GP-9S	GP-9L	GP-9D	GP-10S	GP-10L	GP-10D	GP-11S	GP-11L	GP-11D	GP-13S	GP-13L	GP-14S	GP-14L	GP-14D	GP-15S	GP-15L	GP-15D
		Sampling Date:	F-07	F-07	F-07	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08
Parameter	Method	Units																										
Vinyl Chloride	8260B	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chloroethane	8260B	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1,1-Dichloroethane	8260B	µg/L	7	12	17	8.8	9.1	47	14	2.2	-	-	16	3	23	33	10	-	14	7.1	-	-	14	8.2	2.6	11	-	2
Methylene Chloride	8260B	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
total 1,2-Dichloroethane	8260B	µg/L	170	-	5.7	3.4	-	4.4	-	-	-	17	11	-	7.5	3.6	-	6.5	3.2	-	-	-	4.3	4.4	-	-	-	
1,1,1-Trichloroethane	8260B	µg/L	800**	1.0	19	13	-	45	20	-	-	-	150	100	-	39	13	-	17	9.1	-	-	-	7.9	-	-	-	
1,1,1-Trichloroethane	8260B	µg/L	200	100	73	10	120	210	2.6	20	-	-	-	-	170	25	3.7	15	3.3	-	5.3	-	100	-	-	69	-	-
1,2-Dichloroethane	8260B	µg/L	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Trichloroethene	8260B	µg/L	5	59	42	11	60	60	3.5	-	-	-	-	-	110	6.8	2.8	3	-	-	-	-	-	-	-	-	-	
Toluene	8260B	µg/L	1000	-	-	-	-	-	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-	
1,1,2-Trichloroethane	8260B	µg/L	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tetrachloroethene	8260B	µg/L	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
total Xylenes (m,o, & p)	8260B	µg/L	10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

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Non-responsive

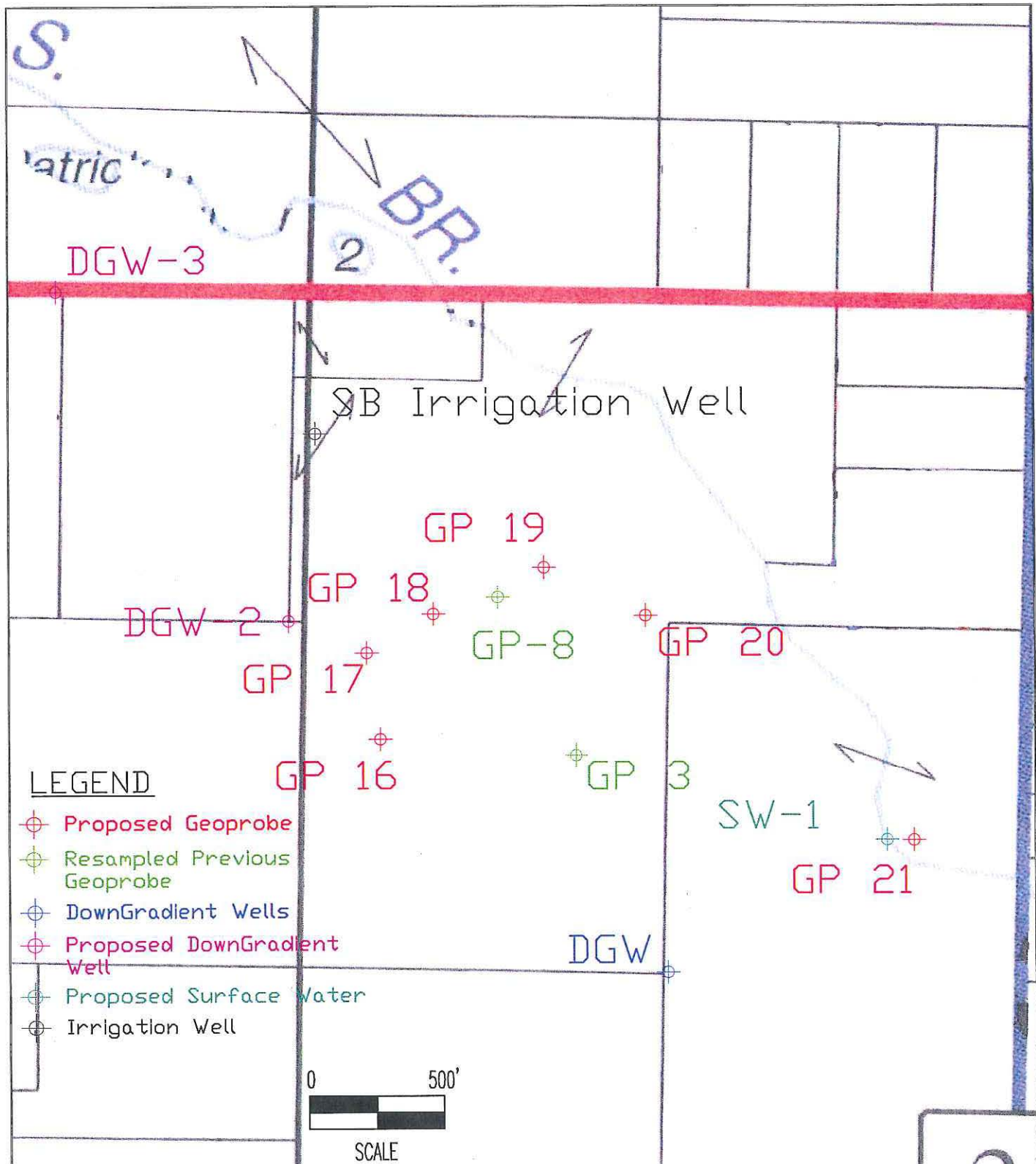


Figure 2
2009 Proposed CMI Investigation Plan

Techalloy Company, Inc.
6509 Olsen Rd.
Union, IL. 60180



Matrix Environmental Inc.
1880 W Winchester Rd Suite 111
Libertyville, IL. 60048

SIZE	Date:	DWG NO.	REV
	05/25/2009		
SCALE 1"=500'		Drawn By: SFG	SHEET

Non-responsive



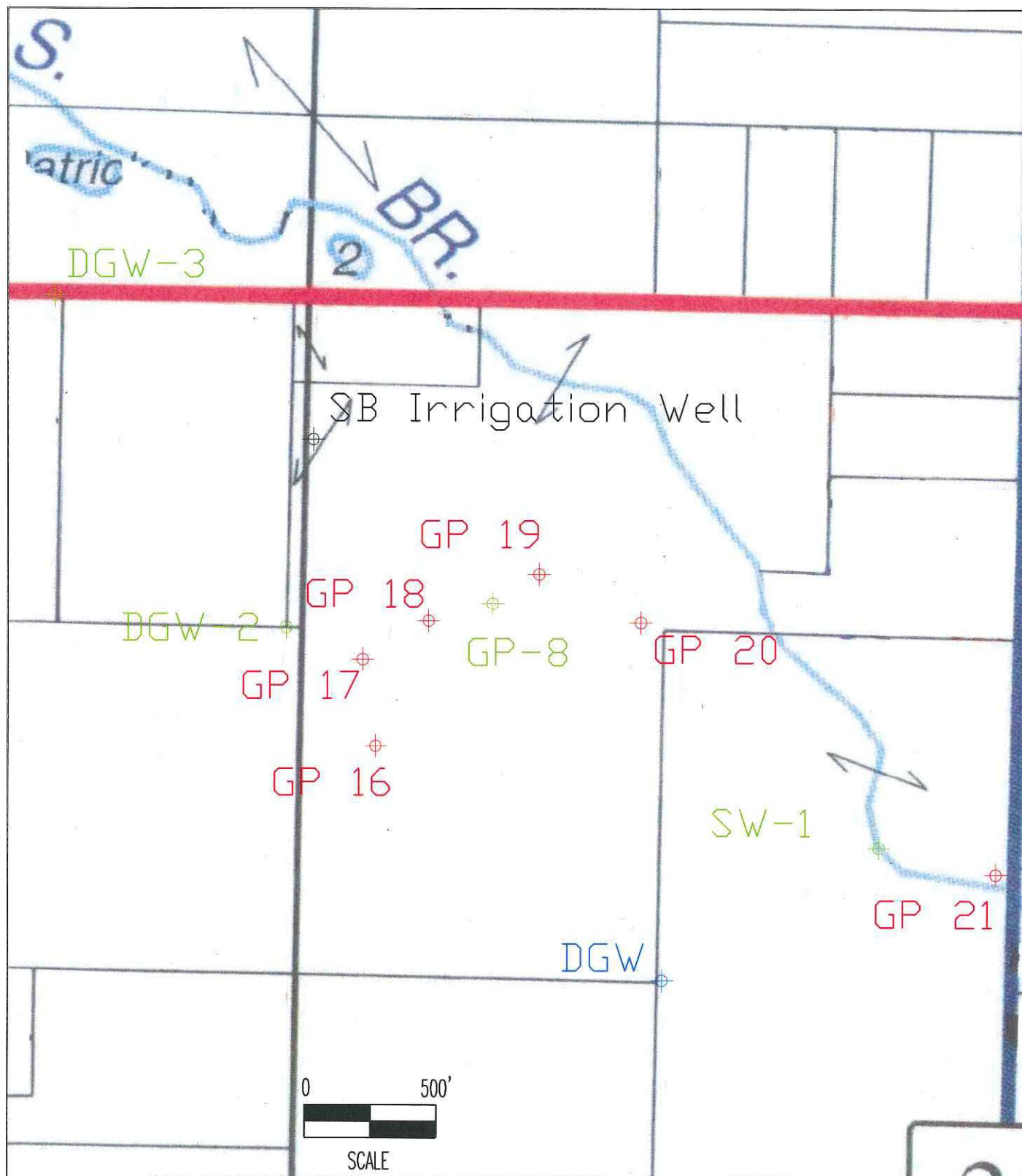


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MONTHLY PROGRESS REPORT
Central Wire Union, Illinois Site
October 2009

1. **Progress Made This Reporting Period** – This reporting period Central Wire continued the operation and maintenance of the groundwater extraction and treatment system.

Central Wire received conditional approval from U.S.EPA of the Work Plan for the 2009 CMI Field Investigation on October 1, 2009. Central Wire verbally agreed to the two minor conditions via a phone call from Mr. John Thorsen of Matrix Environmental, Inc. on behalf of Central Wire to Mr. John Nordine of U.S.EPA on October 1, 2009.

Central Wire sent a letter to Illinois Department of Transportation (IDOT) on August 31, 2009 seeking approval for placement of a well nest in the southern right-of-way of Illinois Highway route 176 as called for in the Central Wire Work Plan. Matrix followed up on that request on October 20, 2009 while in the process of trying to schedule the Geoprobe subcontractor for the field work. IDOT claimed they never received our request and we had to begin what is a permitting process over again. IDOT now have a resubmitted request and they have inspected the site and asked for more detailed drawings of the well nest. Central Wire has completed these drawings in elevation view. Central Wire is awaiting results of the utility clearance to add the specific location in plan view to complete the permit application.

We also have scheduled the field work for the Geoprobe groundwater samples from our preferred subcontractor, Geoserve, Inc., the firm that has performed work in 2007 and 2008, as well as previous years, for Central Wire. We have scheduled this field work on November 23 – 25, 2009. Mr. Steven Grant (847.894.6137) will be the field engineer. In addition, Jack Thorsen (262.237.1130) will also be in the field that day. To coordinate observation of Matrix's field activities, we will be at the South Branch Nursery at 8 am on November 23, 2009. South Branch Nursery is located at 18101 Route 176, Union, IL 60180-0261.

Summary of Validated Data and Results – No samples were taken in October 2009. The June sampling event was summarized and data summaries transmitted in the August Report.

Central Wire plans to implement the 2009 CMI Field Investigation Work Plan in November 2009.

2. **Upcoming Events/Activities Planned** – The existing remediation systems will continue to operate as planned.

Central Wire plans to implement the 2009 CMI Field Investigation Work Plan in November 2009.

3. **Anticipated Problem Areas and Recommended Solutions** – There are no current or anticipated problem areas to be resolved.

4. **Key Personnel Changes** – None.



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October 2008 Geoprobe Sampling Results
for Volatile Organic Compounds

Parameter	Method	Monitoring Location Sampling Date	GP-3S	GP-3I	GP-3D	GP-3S	GP-3I	GP-3D	GP-8S	GP-8I	GP-8D	GP-8S	GP-8I	GP-8D	GP-10S	GP-10I	GP-10D	GP-11S	GP-11I	GP-11D	GP-13S	GP-13I	GP-14S	GP-14I	GP-14D	GP-15S	GP-15I	GP-15D
			F-07	F-07	F-07	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08	O-08
Vinyl Chloride	8260B	µg/L	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chloroethane	8260B	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1,1-Dichloroethane	8260B	µg/L	7	12	17	8.9	9.1	47	14	2.2	-	-	-	16	3	23	33	10	-	14	7.1	-	-	14	8.2	2.5	11	-
Methylene chloride	8260B	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
total 1,2-Dichloroethene	8260B	µg/L	170	-	-	5.7	3.4	-	-	4.4	-	-	-	17	11	-	7.5	3.5	-	6.8	3.2	-	-	-	4.3	4.4	-	-
1,1,1-Trichloroethane	8260B	µg/L	890	10	19	13	-	45	29	-	-	-	-	150	100	-	39	13	-	17	8.1	-	-	-	7.9	-	-	
1,1,1-Trichloroethane	8260B	µg/L	200	100	73	10	120	210	2.6	28	-	-	-	-	-	170	28	3.7	15	3.3	-	5.3	-	100	-	50	-	
1,2-Dichloroethane	8260B	µg/L	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Trichloroethene	8260B	µg/L	5	59	42	11	60	60	3.5	-	-	-	-	-	-	110	6.8	2.8	3	-	-	-	-	-	-	-	-	
Toluene	8260B	µg/L	1000	-	-	-	-	-	-	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	
1,1,2-Trichloroethane	8260B	µg/L	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tetrachloroethene	8260B	µg/L	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
total Xylenes (m, o, & p)	8260B	µg/L	10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Key: J = Parameter detected below quantitation detection limit
 - = Not Detected
 * = Not Analyzed
 ** = Region 9 Preliminary Remediation Goal
 S = Shallow = 27"
 I = Intermediate = 67"
 D = Deep = 85"

Table 1
Central Wire Company Union, Illinois
March 2007 Geoprobe Sampling
Results

		Monitoring Location		GP-2S	GP-2D	GP-3S	GP-3I	GP-3D	GP-4S	GP-4I	GP-4D	GP-5S	GP-5I	GP-5D	GP-6S	GP-6I	GP-6D	GP-7S	GP-7I	GP-7D
		Sampling Date:		Mar-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Feb-07	Mar-07	Mar-07	Mar-07
Parameter	Method	Units	MCL																	
Vinyl Chloride	8260B	µg/L	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	8260B	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	8260B	µg/L	7	-	-	12	17	8.9	-	-	-	-	-	-	-	-	-	-	-	-
Methylene chloride	8260B	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total 1,2-Dichloroethene	8260B	µg/L	170	-	-	-	5.7	3.4	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	8260B	µg/L	800**	-	-	1.0	19	13	-	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	8260B	µg/L	200	6.2	-	100	73	10	-	-	-	15	-	-	-	-	-	-	-	-
1,2-Dichloroethane	8260B	µg/L	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	8260B	µg/L	5	3.1	-	59	42	11	-	-	-	4.7	-	-	-	-	-	-	-	-
Toluene	8260B	µg/L	1000	-	-	-	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-
1,1,2-Trichloroethane	8260B	µg/L	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	8260B	µg/L	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total Xylenes (m,o, & p)	8260B	µg/L	10,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Key: J = Parameter detected below quantitation detection limit
= Not Detected
* = Not Analyzed
** = Region 9 Preliminary Remediation Goal
S = Shallow = 27'
I = Intermediate = 57'
D = Deep = 85'

3.0 UPDATE OF RCRA FINANCIAL ASSURANCE COST ESTIMATE

The Central Wire Union Plant last updated the RCRA Financial Assurance Cost Estimate in 2007, but updated it at that time to include the 2008 estimated costs. As part of this project Central Wire will update the RCRA Financial Insurance Cost Estimate to include estimated 2010 costs of closure and post closure care.

While we have stated above that Central Wire does not expect to see any chemicals or degradation products in the closest well, the South Branch Nursery irrigation well, for about four years, Central Wire will include the replacement of one well drilled and cased to the St. Peters Sandstone in the revised estimate.

SUPPLEMENTAL RESPONSES TO U.S. EPA COMMENTS

Central Wire recognizes that groundwater in the St. Peter Sandstone may exceed MCLs for radium. Central Wire will take appropriate scientific and engineering actions including radium analysis at the planned depth of the well screen for radium and perform a risk assessment if the analytical results exceed the MCL.

U.S. EPA made a request that the well that the transducer is in not be flush mounted. This well would then require bollards to protect the well casing and protector pipe. Illinois DOT may not allow Central Wire to do this because it would impair their ability to mow the Right of Way.

Central Wire understands that U.S. EPA approves the proposed sampling locations as modified by your comments on the original Work Plan. If there is an MCL exceedence on samples presumed to be at the leading edge of the plume, Central Wire will resample farther downgradient as a part of this sampling event. In last year's sampling event, GP-8 was the well presumed to be at or beyond the leading edge of the plume. There were detections for 1,1,1-TCA and 1,1-DCE, but they were below the MCLs.

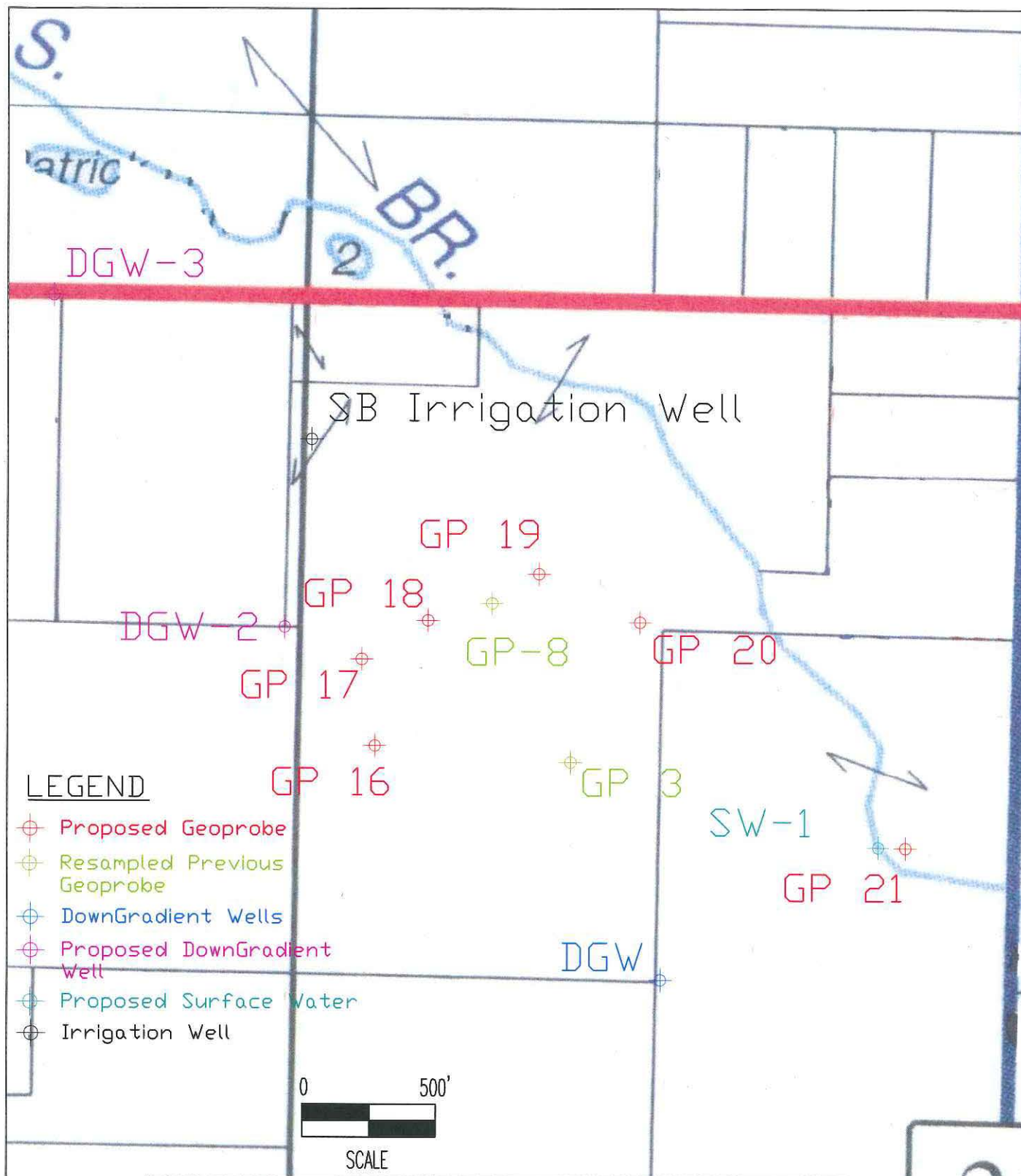


Figure 2
2009 Proposed CMI Investigation Plan

Techalloy Company, Inc.
6509 Olsen Rd.
Union, IL. 60180



Matrix Environmental Inc.
1880 W Winchester Rd Suite 111
Libertyville, IL. 60048



SIZE Date:
05/25/2009

DWG NO.

REV

SCALE 1"=500'

Drawn By: SFG

SHEET

Non-responsive

LAND AND CHEMICALS DIVISION

Margaret Guerriero, Director 6-7435

Hall, Antionette (APA) 6-0220; Boyle, Joseph 6-4434

DEPUTY DIVISION DIRECTOR

Melcer, Allen (Acting) 6-1498

Miskovich, Vera (SEEP) 3-4782

Mail Code L-8J

Hogan-Chereskin, Jean (Planning) 6-4435

Gonzalez, Rafael (Coordinator) 6-0269

Freeman, Brian (QA Coordinator) 3-2720

Daviston, Beatrice (AO) 3-2153

McClendon, Gussie (SEEP) 6-5820

REMEDATION AND REUSE BRANCH

Cisneros, Jose, Chief 6-6945

Branch number 3-0398

Mail Code LU-9J

Vacant (APA)

Mangino, Mario 6-2589

Mikulka, Michael 6-6760

Wentz, Ann (RCRA Brownfields) 6-8097

Victorine, Gary (LRC/Revitalization) 6-1479

CORRECTIVE ACTION SECTION 1

Cho, Hak, Chief 6-0988

Section Number 6-0984

Debus, Diane (APA) 3-0616

Debus, Allen 6-6186

Egan, Robert 6-6212

Gmitro, Todd 6-5909

Greensley, Jean 3-1171

Heller, Don 3-1248

Mazur, Dan 3-7997

Mullin, Michelle 3-2470

Nemani, Nate 6-3224

Olsberg, Colleen 3-4686

Patulski, Dan 6-0656

Petrovski, David 6-0997

Ramanauskas, Peter 6-7890

Rojo, Juana 6-0990

Rudloff, Greg 6-0455

CORRECTIVE ACTION SECTION 2

Hamper, George, Chief 6-0987

Section number 6-3566

Jackson, Angela (APA) 3-8973

Adenuga, Jonathan 6-7954

Bardo, Ken 6-7566

Black, Christopher 6-1451

Bury, Carolyn 6-3020

Capiro, Mirtha 6-7567

Cygan, Gary 6-5902

Dampitz, Amanda 3-3808

Dodds, Jennifer 6-1484

Groboski, Jill 6-3890

Jones, Erin 3-0623

Kaysen-Majack, Michelle 6-4253

McConaghy, Christine (Intern) 3-2013

Nordine, John 3-1243

Ohl, Tammy 6-0991

Sundar, Bhooma 6-1660

Thomas, Juan 6-6010

Records Center 6-0900

Conf. Room R0708 6-0886

Conf. Room R0809 6-0893

Conf. Room R0811 3-8337

Conf. Room R0812 6-7436

Conf. Room R0813 6-0655

Conf. Room R0814 3-8333

Conf. Room R0815 3-8336

Conf. Room R0913 3-5652

Conf. Room R0914 3-5629

Conf. Room R0916 6-3610

RCRA BRANCH

Harris, Willie, Chief 3-2306

Setnicar, Mary (Deputy Br Chief) 6-0976

Branch number 6-0838

Mail Code LR-8J

Jones, Katrina (APA) 6-2871

Barringer, Uylaine 6-4454

Helm, Cora 3-6844

RCRA COMPLIANCE SECTION #1

Jereza, Lorna, Chief 3-5110

Section Number 6-3569

Vacant (APA)

Bourgikos, Spiros 6-6862

Brown, Todd 6-6091

Burrus, Sheila 6-3587

Carter, Timothy 6-7613

Chachakis, Daniel 6-9871

Damico, William 3-8207

Kriz, Judith 3-6057

Paulin, Jamie 6-1771

Scambiaterra, Graciela 3-5103

Sharrow, Diane 6-6199

Smith, Robert 6-7568

Valentino, Michael 6-4582

RCRA COMPLIANCE SECTION #2

Little, Paul, Chief 6-4460

Section number 6-3570

Gray, Margaret (APA) 3-5028

Atkociunas, Paul 6-7502

Brauer, Sue 3-6134

Beedle, Michael 3-7922

Campbell, Duncan 6-4555

Cunningham, Michael 6-4464

Francis, Walt 3-4921

Gangwisch, Bryan 6-0989

Luksis, John 6-4077

Samaranski, Derrick 6-7812

Whitney, Brenda 3-4796

RCRA PROGRAMS SECTION

Lodisio, Laura, Chief 6-7090

Section number 6-6159

Cuerington, Gaye (APA) 3-1519

Becker, Fred (SEEP) 6-2014

Blough, James 6-2967

Cisneros, Arturo (IL) 6-7447

Dabner, Cindy 6-2842

Greenberg, Judy (MI) 6-4179

Gromnicki, Jean 6-6162

Hill, Kevin (MI) 6-6087

Huang, Wen 6-6191

Johnson, Steve 6-1330

Lambesis, Chris 6-3583

Lee, Jae 6-3781

Lowery-Martin, Sharon 6-4583

Patterson, Estelle 6-3594

Ramaly, Todd 3-9317

Restaino, Mark (VI) 6-0394

Siler, Sandy (IN) 6-0429

Westefer, Gary 6-7450

Zimmerman, Dea OPP HQ. 3-6344

Important Numbers:

EMERGENCY 911

Federal Protective Service:

1-877-437-7411 or 1-312-353-0735

CHEMICALS MANAGEMENT BRANCH

Klevs, Mardi, Chief 3-5490

Branch number 6-6006

Mail Code LC-8J

Bronson, Marlene (APA) 6-6906

Master, Edward 3-5830

Rouse, Tonesia 6-7098

Suero, MaryAnn 6-9077

TOXICS SECTION

Martig, Anton, Chief 3-2291

Section number 6-6003

Miklusak, Ann (SEEP) 3-5907

Avant, Emma 6-7899

Cirino, Yamille 3-5882

Codina, Thelma 6-6219

Doughty, Dick (SEEP) 6-6068

Gabrielow, Frank (SEEP) 6-0404

Grams, Bradley 6-7747

King, Phil 3-9062

Koralewska, Ludmilla 6-3577

Moore, Tammy 6-6181

Nash, James (SEEP) 6-0754

Turpin, David 6-7836

Wiebenga, Marlyse 6-4437

Wsol, John (SEEP) 3-5685

Zar, Howard (SEEP) 6-6795

PESTICIDES SECTION

Hopkins, Dan, Chief 6-5994

Section number 3-2192

Freeman, Stephan (Student Aide) 6-4759

Anhalt, Heather 6-3572

Baumgartner, Donald 6-7835

Bristol, Meonii 3-4716

Dibblee, Seth 6-5992

Jones, Margaret 3-5790

McDonald, Holly 6-6012

Morgan, Steve (SEEP) 3-1524

Mysz, Amy 6-0224

Spivey, Kim 6-0910

Rittenhouse, Susan 6-1769

Wilkinson, Bruce 6-6002

PEST/TOXICS COMP. SECTION

Crosetto, Thomas, Chief 6-6294

Section number 6-7061

Brown, Frederick (APA) 6-1489

Allen, Robert 3-5871

Anderson, Christine 6-9749

Bonace, Terry 6-3387

Calvo, Estrella 3-8931

Cooper, Scott 6-1332

Grace, Pamela 3-2833

Gomora, Bill (SEEP) 6-6016

Lukascyk, Joe 6-6233

Moore, Kendall 3-1147

Muffitt, Gail 6-6008

Myhre, John (SEEP) 6-6018

Niess, Claudia 6-7598

O'Meara, Nidhi 6-0568

O'Neil, James (SEEP) 3-0966

Pilny, Edward (SEEP) 6-0206

Shaw, Maynard 3-5867

Star, David 6-6009

Tate, Mary (SEEP) 6-7834

Zolnierczyk, Kenneth 3-9687

Health Unit- 4th floor 3-8785

MATERIALS MANAGEMENT BRANCH

Garl, Jerri-Anne, Chief 3-1441

Leonova, Larisa (Act. Assoc Br Chief) 3-5388

Branch number 6-3584

Mail Code LR-8J

Hoffman, Kim (APA) 6-0993

Bill, Briana 3-6646

Chapman, Burdell (SEEP) 3-9564

Estrella, Juan 3-7921

Geyer, Rebecca 3-8314

Gevrenov-Stehlin, Julia 6-6832

Haff, Janet 3-7923

Hassan, Jacob 6-6864

Kaplan, Phillip 3-4669

Mooney, Susan 6-3585

Newman, Christopher 3-8402

Ruesch, Paul 6-7898

Schiff, Julie 6-0407

Tong, Dolly 6-1019

Twickler, Donna 6-6184

Wyatt, Jennifer 3-2478

PROGRAM SERVICES BRANCH

Magee, Julie, Chief 6-6063

Branch number 3-8510

Mail Code LP-9J

Engram, Brenda (APA) 6-4465

Holbus, Eric (Intern) 6-0216

Manning, Thomas (PCDOC) 6-6943

Matheson, Thomas 6-7569

Millard, Margaret (CARE) 3-1440

Stanfield, Lucy (GIS) 6-1121

Ward, Tony (PC DOC) 6-1486

White, Mary 3-5878

INTERNAL SERVICES SECTION

Ratcliffe, Jane, Chief 6-7449

Section number 6-1824

Castro, Desiree (Student Aide) 3-6481

Bakk, Daniel 6-4158

Generao, Clarita (SEEP) 6-7425

Grover, Eleanor 3-3126

Henderson, Sheritha 3-5142

Klemme, Christine 6-3715

Lubin, Arthur 6-6226

Marrable, LaNita 6-1772

Modi, Archana (SEEP) 6-4186

Oliver, Marie 6-6339

Rancher, Terri 6-4188

Travis, Sharon 6-6533

Villarreal, Mary 6-7439

STATE AND TRIBAL SERVICES SECTION

Green, Sharon, Chief 3-5661

Section number 6-6328

Briggs, Prenella (APA) 6-6161

Crisp, Ethel 3-1442

Garner, Rita 6-2440

Harris, Bob 6-7577 (710 Conf Room)

Kiddon, Sharon 6-6173

Morbito, Joel 6-6761

Orenstein, Bernie 6-1500

Reape, Denise 3-7925

Robinson, Martha 6-6141

Robinson, Ozie 6-4463

Stone, George 6-7517

Wojtas, Allen (Contracts) 6-6194

Building Maintenance 3-6152

Lettie - mail room 6-7902

Betty - warehouse 3-5553

Non-responsive

Non-responsive



Directions

Prairie Sky Orchard is located 50 miles from Chicago, on North I just north of Rt 176 in Union, IL.

FROM CHICAGO: (Option A)

- ❖ Take I-90 from Chicago west to Rt 20.
- ❖ North on Rt 20 (left at light) to South Union Rd.
- ❖ South Union Rd north (turn right) to West Union Rd/Jeffe St.
- ❖ West Union/Jefferson St. east (turn right) to stop sign in center.
- ❖ North (left) on North Union Rd/Main St, past stop sign at 176.
- ❖ Continue north on North Union Rd. for 500'. Prairie Sky C will be on the right.

FROM CHICAGO: (Option B)

- ❖ Take I-90 from Chicago west to Rt 47.
- ❖ North on Rt 47 through Huntley to westbound Rt 176.
- ❖ (NOTE: The first light will be eastbound Rt 176, continue second light which will be westbound Rt 176.)
- ❖ Travel approximately 10 miles west on Rt 176 to North U Rd.
- ❖ North (turn right) on North Union Rd. for 500'.
- ❖ Prairie Sky Orchard will be on the right.

Non-responsive

STANDARD OPERATING PROCEDURE
FOR GROUND WATER SAMPLING

The Office of Environmental Measurement and Evaluation
EPA New England - Region 1
11 Technology Dr
North Chelmsford, MA 01863

Prepared by: _____
Jerry Keefe - EIA Team Leader Date

Reviewed by: _____
Dan Granz - Water Inspector Date

Approved by: _____
Rob Maxfield - EIA Branch Chief Date

Revision Page

Date	Rev#	Summary of Changes	Sections
1/9/03	0	Initial Approval	

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1.0 Scope & Application:

- 1.1 This Standard Operating Procedure is applicable to the collection of representative samples from ground water. It includes samples collected from either temporarily or permanently installed ground water monitoring wells. Samples can also be obtained from pits, dug or drilled holes that contain ground water. Specific procedures for Low Stress (low flow) Purging and Sampling is described in its own SOP.
- 1.2 The scope of this SOP is limited to field operations and protocols applicable during ground water sample collection.

2.0 Summary of Method:

- 2.1 Ground water sampling procedures can be split into two tasks, purging and sampling. Purging is the process of removing stagnant water from the location (monitoring well, dug pit or hole) prior to sampling and replacing it with ground water from the adjacent formation. This will enable the sampler to collect a more representative sample of the actual aquifer condition. Thus, the SOP will first discuss appropriate purging methods followed by sampling techniques.
- 2.2 Purging
 - 2.2.1 Purging and Purge Volume Computation

Monitoring Wells should be purged, at a minimum, the equivalent of three times the well volume of standing water or continue evacuating water until specific conductance, temperature, and pH stabilize. The volume of water present in each well shall be computed based on the length of water column and well casing diameter. The water volume shall be computed using the following formula given below:

$$V = 0.041D^2(d_2 - d_1)$$

V = Volume in gallons

D = Inside diameter of well casing in inches

d_2 = Total depth of well in feet

d_1 = depth to water surface in feet

Field notes should reflect the single well volume calculations or determinations that clearly identify the purge volume goal. Stabilization should be achieved within 3 well volumes, if not continue until it does or to a maximum of 5 well volumes.

The field project manager should determine when the most representative sample can be obtained based upon available site information. With respect to ground water chemistry the following conditions can generally be used to determine purge stabilization: **specific conductance varies no more than 10 percent, and temperature is constant for at least three consecutive readings.** During sample collection water chemistry parameters should be measured and recorded.

In some instances a well may be pumped or bailed dry (evacuated). When this occurs, the well can be assumed to be adequately purged and the well can be sampled following sufficient recovery (enough volume to allow filling all sample containers).

Sampling must commence as soon as possible after purging. If there is not an adequate volume available, than sampling should occur as soon as there is. Purging procedures are described below.

2.2.2 Well-Purging Methods

Purging must be performed for all ground water monitoring wells prior to sample collection in order to remove stagnant water from within the well casing and ensure that a representative sample is obtained. Three general types of equipment are used for well purging; bailers, surface pumps, or down-well submersible pumps. In all cases pH, temperature, and specific conductance will be monitored during purging. The data values shall be recorded into the field log book.

2.2.3 Decontamination

The purging equipment shall be decontaminated immediately after use to ensure against cross-contamination from one well to the next well.

Bailers: If a bailer is used to purge the well, use dedicated one time use bailers. If not then: add clean detergent solution to bailer, cover the ends, and slosh solution end to end while rotating the barrel to ensure washing of all interior surfaces. Dump spent detergent solution in a waste collection vessel. Thoroughly rinse exterior surfaces three times with distilled water. Rinse the interior of bailer with distilled water three times. Using a teflon wash bottle designated for use with a specific solvent (typically isopropyl alcohol or methanol), squirt solvent on the inside of the bailer's barrel and rotate the bailer to flush the entire surface, then cover ends and slosh solvent end to end while rotating the barrel of the bailer. Dump spent solvent in a designated waste container. Repeat solvent rinse process three times. Rinse the exterior surface of the bailer with solvent and wipe dry with a chemical resistant wipe. Repeat this process three times as well. Dispose of all wipes and spent solutions in appropriate containers and return them to the laboratory.

Bailer Cord: The wetted or contaminated portion of braided nylon or braided cotton cord can be cut and disposed of.

Pumps: If a pump is used, pump one gallon of distilled water through immediately after use. Wash or wipe the exterior surface of the pump hose with a detergent solution and rinse or wipe three times with distilled water. Thoroughly wash or wipe three times with solvent (typically isopropyl alcohol) and allow to air dry before reuse.

2.3 Sampling

Sampling is the process of collecting, containerizing, and preserving the ground water sample after the purging process is complete. Three devices have been generally accepted to collect ground water samples from most wells. These are Teflon bailer, peristaltic pump/vacuum jug assembly, and a stainless steel and Teflon bladder pump. A description of how to collect a sample using these tools will be described later on in section 8.

3.0 Definitions:

- 3.1 **Bottle Blank:** Analyte-free water is collected into a sample container, of the same lot as the containers used for the environmental samples. This evaluates contamination introduced from the sample container(s) from a common lot.
-

- 3.2 Equipment/Rinse/Rinsate Blanks: A sample that is collected by pouring over or running analyte-free water through the sample collection equipment after decontamination and before sample collection. The sample is collected in the appropriate sample container with the proper preservative, identical to the samples. This represents background contamination resulting from the field equipment, sampling procedure, sample container, preservative, and shipment.
- 3.3 Field Blank: In the field, analyte-free water is collected into a sample container with preservatives. The sample containers are the same lot used for the environmental samples. This evaluates contamination introduced from the sample container(s) with applicable preservatives. Field blanks are not used for volatile samples.
- 3.4 Field Replicates/Duplicates: Two or more samples collected at the same sampling location. Field replicates should be samples collected side by side or by collecting one sample and immediately collecting the second sample. Field replicates represent the precision of the whole method, site heterogeneity, field sampling and the laboratory analysis.
- 3.5 Field Split Samples: Two or more representative subsamples taken from one environmental sample in the field. Prior to splitting, the environmental sample is homogenized to correct for sample heterogeneity that would adversely impact data comparability. Field split samples are usually analyzed by different laboratories (interlaboratory comparison) or by the same laboratory (intralaboratory comparison). Field splits are used to assess sample handling procedures from field to laboratory and laboratory's comparability.
- 3.6 Filter Blank: In the field, analyte-free water is passed through a filter and collected into in the appropriate sample container. The filter blank is then preserved. This procedure is identical to the sample collection.
- 3.7 Laboratory Quality Samples: Additional samples will be collected for the laboratory's quality control: matrix spike, matrix spike duplicate, laboratory duplicates, etc.
- 3.8 Proficiency Testing (PT)/Performance Evaluation Sample (PES): A sample, the composition of which is unknown to the laboratory or analyst, provided to the analyst or laboratory to assess the capability to produce results within acceptable criteria. This is optional depending on the data quality objectives.
- 3.9 Shipping Container Temperature Blank: A water sample that is transported to the laboratory to measure the temperature of the samples in the cooler.
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- 3.10 Trip Blanks: A sample collected at the laboratory using analyte free water in the appropriate sample container with the proper preservative, taken out to the field, and returned to the laboratory for analysis without being opened. Trip blanks are generally for volatile organic compounds, low level metals, and gasoline range hydrocarbon samples. Used to assess contamination introduced during sample transport.

4.0 Health and Safety Warnings:

- 4.1 When working with potentially hazardous materials or situations, follow EPA, OSHA, and specific health or safety procedures.
- 4.2 All proper personal protection clothing and equipment is to be worn.
- 4.3 When sampling lagoons or surface impoundments containing known or suspected hazardous substances, take adequate precautions. The sampling team member collecting the sample should not get too close of the edge of the impoundment, where bank failure may cause them to lose their balance.
- 4.4 Physical hazards associated with well sampling:
1. Lifting injuries
 2. Use of pocket knives for cutting discharge hose
 3. Heat and cold stress
 4. Slip, trip, and fall conditions
 5. Electrical shock associated with using submersible pumps.
- 4.5 Some samples may contain biological and chemical hazards. These samples should be handled with suitable protection to skin, eyes, etc.

5.0 Interferences:

- 5.1 Interference may result from using contaminated equipment, solvents, reagents, sample container, or sampling in a disturbed area.
- 5.2 Cross contamination problems can be eliminated or minimized through the use of dedicated sampling equipment. If this is not possible or practical, then decontamination of the sampling equipment is necessary.
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- 5.3 All sampling equipment must be routinely demonstrated to be free from contaminants under the conditions of the analysis by running equipment blanks.

6.0 Personnel Qualifications:

- 6.1 All field samplers working at Superfund sites are required to take a 40 hour health and safety training course and a refresher course prior to engaging in any field activities.
- 6.2 The field sampler should be trained by an experienced sampler before initiating the procedure.
- 6.3 All personnel shall be responsible for complying with all necessary quality assurance/quality control requirements that pertain to their organizational/technical function.

7.0 Equipment and Supplies:

Table 1 listed below identifies the types of equipment which may be used for a range of ground water-sampling applications. From this list, a project- specific equipment list should be selected based upon data quality objectives, the depth to ground-water, purge volumes, analytical parameters and well construction.

Table I. Equipment List

- o Purging/Sample Collection : Bailer, Teflon or Stainless Steel, Centrifugal Pump, Submersible Pump, Peristaltic Pump, Water-Level Measurement Equipment
- o Sample Preparation/Field Equipment: pH Meter w/ standards, Specific Conductance Meter Thermometer, Chlorine Residual Meter, Filtration Apparatus

Additional equipment to support sample collection and provide baseline worker safety will be required to some extent for each sampling task. The additional materials are separated into two primary groups: general equipment which is reusable and materials which are expendable.

- o General: Project-specific sampling program, Decontamination and Cleaning solutions (Distilled-water, isopropyl alcohol* in Telfon wash bottle, Detergent solution, Tap water), Site-specific Health & Safety equipment (gloves, respirators, goggles), Field data sheets and log book, Preservation solutions, Sample containers, and intermediate containers, Coolers and ice and/or ice packs, and First Aid kit
- o Expendable Materials: Bailer Cord (braided nylon or braided cotton line, 1/8" diameter or smaller, do not use monofilament fishing line), Respirator Cartridges, Gloves (chemical resistant), Chemical-free paper towels, and Trash containers

* Methanol, Hexane or methylene chloride (in order of preference) may also be used if so noted

8.0 Sample Collection:

8.1 Water-Level Measurement

Prior to obtaining a water-level measurement, create a clean surface area onto which sampling equipment can be positioned and work can be performed. If necessary cut a slit in one side of a plastic bag and slip it over and around the well, to create a clean space for the sampling equipment. Unlock and/or open the monitoring well. Note and record description of condition of the security system and protective casing at the well site, i.e., cap, lock, base.

8.1.2 Measurement:

After unlocking and/or opening a monitoring well, the first task will be to obtain a water-level measurement. Water-level measurement will be made using an electronic water level detector. Establish a measuring point. Typically, all depth measurements should be made from top (the highest point) of the inner well casing. The measuring point location should be described in the field log book and should be used in all subsequent sampling efforts. Lower the water-level measurement tape and record the depth to water and total depth of the well. Care should be taken to assure that the water-level measurement device hangs freely in the monitoring well and is not adhering to the wall of the well casing. Record into field logbook.

8.1.3 Decontamination:

The measurement device shall be decontaminated immediately after use with either detergent and DI water or an isopropyl alcohol soaked towel. Generally, only that portion of the tape which enters the water table should be cleaned. It is important that the measuring tape is never placed directly on the ground surface.

8.2 GW Sampling:

Determine the appropriate ground water sampling methods: bailers, submersible pumps, and peristaltic pumps. The withdrawal methods selected may depend upon the advantages or disadvantages each device offers relative to the overall data quality objectives. It could be more appropriate to use a combinations of devices to achieve a desired sample. Therefore, careful consideration should be made when choosing the sample device.

8.2.1 Sample Collection Procedures: A positive-displacement type sampling bailer is mostly for collection of volatile organics.

- Place protective plastic material around monitoring well, attach line to a new or clean/decontaminated bailer suitable for the diameter well being sampled.
- Lower bailer slowly and gently into well, do not drop or splash bailer into the water. Stop lowering at desired point adjacent to well screen.
- Carefully (don't hit sides of well, this could cause flaking of material into bailer) withdraw and waste three bailers full of well water prior to collecting sample for analyses. Withdraw a sample from the well, transfer the sample from the bailer directly into the sample container. Preserve and filter according to program methodology requirements or as required by site sampling plan.
- Record sampling information in logbook or sampling data sheets. Label appropriate sampling containers with sampling details and custody information.
- Secure well

8.2.2 Peristaltic Pump Method:

- Using a water level detector, determine the depth to the water table, and depth to the well bottom.
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- Measure out the correct length of small diameter tubing based on measured depths. At least 12" of additional tubing should protrude above the well riser. Lower the tubing into the well opening until it reaches the mid point of the well screen.
- Purge at least three well volumes of water before sampling begins, using a water pumping device, such as a peristaltic pump.
- Record sampling information in logbook or sampling data sheets. Label appropriate sampling containers with sampling details and custody information.
- To collect sample, hold the sample container in a slightly tilted position under the well tubing dispenser, and fill to desired amount.
- Repeat step above until the appropriate number of samples is obtained.
- After sampling is complete: disconnect the pump, remove the tubing from the well.
- Secure well

8.2.3 Submersible Pumps:

- Allow well to recharge after purging, keeping the pump just above or at the screen mid section.
 - Attach a gate valve to hose if necessary (if not already fitted) and reduce pumping flow rate to allow for proper sample collection and minimal well draw down.
 - Record sampling information in logbook or sampling data sheets. Label appropriate sampling containers with sampling details and custody information.
 - If there is no gate valve and discharge rate is high, then run water down side of clean jar and fill sample bottles from the jar.
 - When sampling is finished, remove pump and assembly and decontaminate prior to next location. Tube can be dedicated to well. When sampling well of varying concentrations its best to start with the least contaminated and finish with the most contaminated.
 - Secure well
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8.3 Filtration Procedures for Dissolved Inorganics:

8.3.1 Set up procedure:

- Attach filter to sample hose

8.3.2 Filtering:

- Filter approximately 100 ml's of sample through filter and waste.
- Filter sample, replacing filters as needed to obtain sufficient volume.
- Filter sample into clean sample container and preserve immediately according to program methodology requirements.

9.0 Handling, Preservation, and Storage:

9.1 Transfer the sample into a suitable labeled sample container.

9.2 Preserve the sample or use pre-preserved sample bottles, when appropriate.

9.3 Cap the container, use a custody seal if the sample is for enforcement and then place the container in a zip-lock plastic bag.

9.4 Load all the sample containers into cooler(s) ensuring that the bottles are in the ice but not totally immersed in water.

9.5 Record all pertinent data in the site logbook and/or on the field data sheet.

9.6 Complete the chain of custody form.

9.7 Attach the custody seals to the cooler prior to shipment.

9.8 A list for the laboratory's containers and preservatives for the various analytes is located on the EPA Region 1 homepage under OEME.

10.0 Data and Records Management:

10.1 All data and information is to follow the Field Data Management SOP.

- 10.2 The chain of custody form is signed over to the laboratory. A copy is kept with the sampling records.
- 10.3 The sampling data is stored at US EPA - NE, 11 Technology Dr, North Chelmsford, MA for at least 3 years.

11.0 Quality Control and Quality Assurance:

- 11.1 Representative samples are required. The sampler will evaluate the site specific conditions to assure the sample will be representative.
- 11.2 All sampling equipment must be decontaminated prior to use and after each discrete sample following the General Field Equipment - Cleaning, Preparation, and Decontamination SOP (unless specified differently in SOP or SAP)
- 11.3 All field QC samples requirements in the SAP or QAPP must be followed. These may involve trip blanks, equipment blanks, field duplicates and the collection of extra samples for the laboratory's quality control.

12.0 Waste Management and Pollution Prevention:

- 12.1 During field sampling and analysis events there may be hazardous waste produced from the sample collection. The waste must be handled and disposed of in accordance with federal, state, and municipal regulations. Dispose of the hazardous waste produced at the site where the work was performed, if the operating site has proper disposal available. If there is no disposal that meets regulatory requirements, the waste must be transported back to EPA-NE and transferred to the hazardous waste manager for disposal. The sample volume should be minimized to reduce unnecessary waste.

13.0 References:
